Juiceletter

JULY 2021

The HR Department of Summerpride enjoying their dose of Vitamins in the warm winter Sun of South Africa.

Sustainable Future: Dealing With Challenges and Opportunities of a New Era

Dear Friends,

We have left behind the first half of 2021, which brought about exceptionally unusual experiences and lessons due to the ongoing pandemic. Since the onset of Covid-19 we at IFU have managed to adapt our business processes and decisions to unprecedented disruptive changes and quickly integrate them into our operations, thanks to our global network and the timely insights we received from our stakeholders. We are grateful to all our members who have always been with us for their collaboration and active participation in making the right decisions.

It is time to capitalize on our learnings and to evaluate the challenges and opportunities, and reflect on emerging global trends. All over the world, we are experiencing a period when agricultural industry takes the lead on the stage. Possibly, we are at one of the most critical crossroads of the modern history.

Climate change impacts on natural resources –primarily water resources-, increasing urbanization, rapid reduction of arable land, likely shortage of the provision of enough food supply for the increasing world population, need for reskilling and upskilling the workforce in parallel with the demands of efficiency and new technology and changing consumer preferences could be enumerated as key topics of our agenda. All these important issues lead us to one path: Adopting a sustainable business model with all our members and stakeholders, to integrate and disseminate it in our way of doing business.

Bearing in mind that agricultural production is approximately 20% effective in the release of global greenhouse gas emissions; and almost 70% of the water in our world is used by the agricultural sector, we should be ready to meet the food supply needs of the growing population that will approach 10 billion by 2030. In addition, it is expected that arable agricultural land will also decrease by about 12% by 2050 due to urbanization. So, in the face of those facts, as IFU, how can we contribute?

We can mitigate a major part of the risks with proper cultivation, seasonal change measures, combating income inequality, investing in education, food safety and increasing sustainability focus. The use of smart and sustainable technologies could be extended for handling climate change and assuring efficient use of natural resources. International quality standards, food safety, and traceability systems should be preferred. Skills and competencies of the workforce should be developed to meet these goals.

IFU attaches high importance to international commissions, initiatives and regulations that directly affect the agricultural policies and practices of countries. In this sense, with its motto of “Our food, our health, our planet, our future”, we do support the European Green Deal - From Farm to Fork strategy and targets, which takes important steps and implements applications. We believe that complying with this important call of the European Commission together with all our members will be an important milestone in our sustainability journey.

As IFU, a truly global organization, in order to contribute to creating a sustainable future and coping with challenges and benefiting from new opportunities for our sector, we do favor strengthening the dialogue, sharing best practices, and continuing to set industry standards for supporting the sustainable development of our sector.

Wishing you all a sustainable future and juice- full July!

Demir Şarman,
IFU Vice President
Agribusiness, Energy and Industry
Group President at Anadolu Group

IFU Legislation Commission update

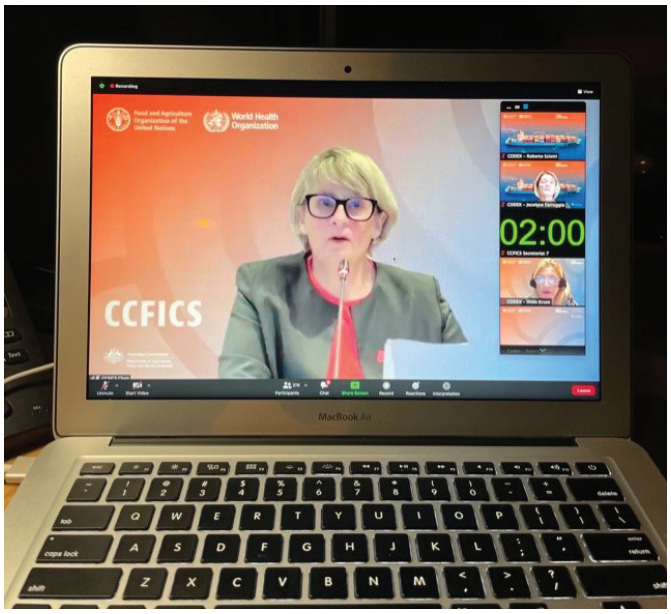
DR. DAVID HAMMOND LEGISLATION CHAIR

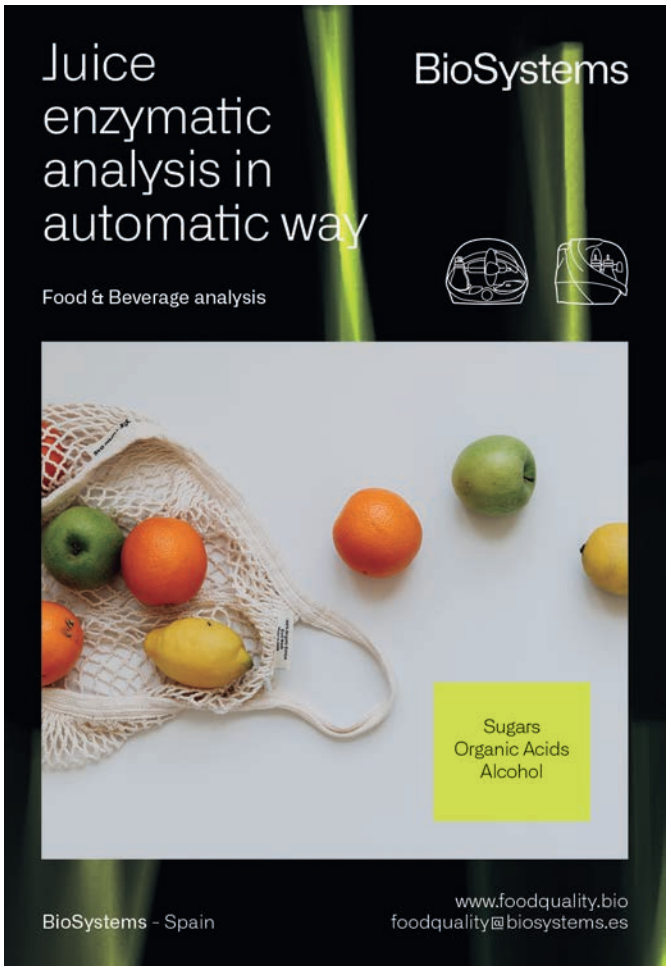
This is a really busy time for Codex at the moment, over the last month there have been meetings of the committees on contaminants (CCCF), methods of analysis and sampling (CCMAS) and import export (CCFICS) and there is meeting at the end of July of the pesticide committee. These meetings, as with all Codex meetings this year, are taking place virtually which presents its own issues as groups can not break off during coffee breaks to try and find a way though a sticking point in the text being considered by the plenary.

This issue was resolved during the recent CCFICS where informal inter session working groups had to be organised to assist in preparation of the text for use of third-party voluntary assurance schemes and use of paperless certificates in world trade, which were finally adopted by the committee and will be sent to the CAC for formal adoption in November. However, an inter-sessional meeting organised to consider the guideline development on recognition and maintenance of equivalence of national food control systems failed to produce a text that was acceptable to all members and so this retained at step 2 of 3.

Topics of interest to the fruit juice industry at these meetings were as follows:-

a) CCFICS Guidelines on use of third part assurance programs (vTPA): One critical element that IFU tried to get altered was the need of a vTPA to immediately inform regulatory authorities of a serious health risk or consumer deception issue detected with a supplier who was part of the vTPA program. IFU proposed that attempts should be made to resolve the issue “within the scheme” first. If this was unsuccessful then the program operator would involve and inform the regulatory authorities. Unfortunately, there was no Governmental support for this change and so it was not altered.





b) CCCF Contaminants committee: It was agreed that a ML for lead should be set at two levels in products intended for infants and small children (0.03 mg/kg for all fruits except grape and 0.04 mg/kg for grapes). IFU did suggest that a third level should be adopted for small fruit and berries, as per regular juice products (0.05 mg/kg) but there was no Governmental support for this. A code of practice for lead reduction in foods was reviewed and updated by the committee and will be sent to the CAC for approval in Nov, there were new issues for fruit juices in the revised text.

c) CCMAS Methods of analysis and sampling: Work will commence this year on revision of the section of STN 234 covering processed foods products. This will include fruit and vegetable juices and will mean that the IFU MAC will be deeply involved in this topic over the next couple of years.

d) CCPR Pesticide residues: Apart from the normal work of setting new/revised MRLs for pesticides, this committee will also be examining guidance on how to handle pesticides which are no longer supported by a manufacture. The safety of compounds should be reviewed periodically to ensure that their use does not pose a significant risk to consumers health. This requires both exposure data (field trial work) and toxicology studies, to be produced for consideration by the joint meeting on pesticides residues (JMPR), the risk assessor for CCPR, so that the MRLs for the compound can be re-approved, revoked or a new MRLs set. If this data is not forth coming CCPR should revoke all relevant CXLs (MRLs) for that compound. The committee is trying to formulate a procedure to permit an extension of their use provided there are no health concerns around the compound.

It will also discuss the possible revision of the IESTI equation. This equation is used by JMPR to assess the health risks associated with the short-term exposure to a compound. The EU proposed around 4 years ago that this should be revised as it considered that the MRLs developed using its present format were not protective enough for some compounds. The proposed change could have meant that a number of CXLs would be lost as they would no longer be considered “protective”. There has been no consensus within the committee on this topic and it will be interesting to see what the outcome is as a position should be finalised by CCPR during its 52nd session.

New Mexican norm relative to fruit juices

On February 15th IFU received the WTO notification G/TBT/N/MEX/168/Rev.1, which was circulated among the IFU members. IFU gathered all the comments on the Mexican Official Standard PROY-NOM-173-SE-2020 applicable to juices, coconut water, nectars, no alcoholic drinks with fruit or vegetable juice and non-alcoholic flavoured waters, definitions, specifications, commercial information and testing methods. An official notification with the gathered comments referring to terms and definitions, certain chemical specification and the use of ingredients was sent to the Directorate-General of Standards of the Ministry of Economy in México on April 15th.

IFU was invited to participate in the Working Group where several Mexican stakeholders participated. Several meetings were planned during April and May to adopt or reject the received comments and to approve the new standard.

IFU proposed modifications to align the new norm to the CODEX STAM 247-2005. Many modifications were accepted such as:

- Change of the isotope value range for coconut water
- Enlargement of the range for the isotopic value for grape juice -29 to -24 and added a note that the range -23 to -24 could be from geographical origins other than Mexico.
- Ban natural pigments added to juices.

The final document is now under the revision of the National Advisory Committee for Standardization of the Ministry of Economy (CCONNSE).

STC activities report 2021

MARIO GOZZI SCIENCE & TECHNOLOGY CHAIR

The IFU Science and Technology Commission has dedicated its efforts to bring forward several relevant projects and research topics.

The Commission is focusing the attention on the development of two Best Practice Guidelines:

1) **“Clear Juices: Processing Phases and Haze Stability “ BPG:** the document is almost finished and it´s under the expert revision process. The publication is expected in mid-2021.

2) **“By-products from juice processing: Management and valorisation” BPG:** the document is advanced and after the critical revision of experts, it´s under the fine-tuning process and probably ready by the end of 2021.

The STC is happy with the contribution to the different events organised by IFU that have resulted in great success:

- **IFU-Technical webinars,** where one of the blocks was exclusively dedicated to nutrition, a topic which is under the radar of IFU-STC for monitoring. (Picture of the Nutrition webinar)

- **IFU- University Summer Digital School.** Due to the situation of the pandemic, it was decided to launch in 2021 a digital version with a pill format, where only the initial programme will be released as a sample of what can be expected in the IFU University Summer School to be celebrated in Parma in 2022.

HiStabJuice project update

Establishing a strong and lasting international training network for innovation in food and juice industries: a 4D-research approach for fruit juice processing.

The project officially started on November 1st, 2020 and the Consortium Agreement was signed within the deadline of December 31st, 2020. Six new Early Stage Researchers (ESR) have been already appointed and gave their introductory presentations in the first follow-up meeting on May 4th.

The new ESRs are:

- **ESR1 - TU Wien in Austria:** PhD position in protein Chemistry/ Biochemistry for MSCA-ITN. The research and PhD thesis will be on "Identification and characterization of enzymes specifically responsible for low colour stability of fruit juices and nectars" by Alberto Zavarise, from Italy.

- **ESR9 – Universität Hohenheim, Stuttgart in Germany:** PhD position in Natural Sciences for MSCA-ITN. The research and PhD thesis will be on "Inactivation mechanisms of spoilage and pathogenic bacteria in fruit juices by conventional and non-thermal treatments" by Astrid Gedas from Poland

- **ESR5 – Höhere Bundeslehranstalt und Bundesamt für Wein und Obstbau in Austria:** PhD position in Food Chemistry/Food Technology for MSCA-ITN. The research and PhD thesis will be on "Key parameters of strawberry for the production of colour stable nectars" by Helen Murray from UK.

- **ESR10 – Gesellschaft für Lebensmittel-Forschung mbH (GfL) in Germany:** PhD position in Biosciences for MSCA -ITN. The research and PhD thesis will be on the "Influence of thermal and non-thermal thermal treatments on selected nutrients of fruit juices and nectars nectars" by Hassan Zia from Pakistan.

- **ESR8 – Stazione Sperimentale per l´Industria delle Conserve Alimentari – Fondazione di Ricerca (SSICA) in Italy:** PhD position in Industrial Engineering form MSCA-ITN. The research and PhD thesis will be on the "Quality of fruit juices and nectars" by Andrés Moreno Barreto from Colombia.

- **ESR11 - Institut National de Recherche pour l´Agriculture, l´Alimentation et l´Environnement (INRAE) in France:** PhD position in Chemistry/Biochemistry/ Physical Chemistry form MSCA-ITN. The research and PhD thesis will be on "Key parameters for stabilization of strawberry product colours in order to understand the colour stability during juice processing, avoid additives and favour natural products products" by Sebastian Rincón from Colombia.

The pending five ESR´s are in the selection process and it is expected that the process will be finished in the next months.

The project coordinator presented the new website for the project: www.histabjuice.eu
During the meeting the Data Management Plan was discussed as well as the ESR´s Career Development Plans, which includes training events such as the IFU Technical Workshop and the IFU Digital Summer School. The scientific planning for the next 6 months was also discussed regarding cultivars to be studied and transportation of samples.

JUICE SUMMIT TV 2021
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Nutrition and Health Session

07/10/21
13:30 to 15:45

Topics

- Vascular fonction
  - *Carrie Ruxton*
- Health effects of fruit and vegetable juices: specific plant bioactives for specific juices
  - *Pedro Mena*
- Are fruit juice sugars a health issue?
  - *Dr David Mela*
- Update on nutrient profiling and implications for the fruit juice industry
  - *Johan Derycker*
- Nutrition & Health Claims: Consumer understanding and preferences
  - *Rodney Jones*
- Communicating fruit juice benefits to consumers – latest science

6 & 7 OCTOBER 2021
www.juicesummit.org

JUICE SUMMIT TV 2021
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Microbiology Working Group activities report 2021

DR. ANDREAS POLITZER MICROBIOLOGY CHAIR IFU

The IFU Microbiological Working Group (MWG) continues with the trend of gaining member participation this year as well, assisted by remote e-working. The MWG has met twice since the last newsletter was published.

After the full revision of MM2 an inter-laboratory validation study has been performed in the second quarter of 2021. Various laboratories based in Europe have participated under the coordination of Neogen and with the agar material provided by Merck. The results of the test will be soon available.

The validations of MM13 Method on the detection and enumeration of acid-tolerant Clostridia, is expected to be done with Adria Développement by the end of 2021, and other validations on HRM methods are foreseen on the horizon.

MAC activities update 2021

MIKKO HOFSOMMER
METHODS OF ANALYSIS CHAIR

Over the winter of 2020 the MAC did a large-scale study of methods for the analysis for **ascorbic acid.** In the IFU collection there is presently a **titrimetric method and an HPLC procedure** for this compound. However, the former had no validation data.

The MAC were successful in providing validation data for a titrimetric method using iodine as a titrant and a potentiometric end-point determination. They also assessed a method using dichlorophenolindophenol as the titrant. Unfortunately, not enough labs returned data using a potentiometric end point to validate this procedure too. A highly coloured product (blackcurrant nectar) was used as part of the validation set and the data liberated for this sample returned poor performance characteristics using a colorimetric detection.

The use of an enzymic method for the analysis for ascorbic acid was also examined in this study. The data that this liberated appeared to be suitable for adoption as an IFU method. The approval of this method will be discussed at the next MAC meeting. If this is adopted this will give us three methods in the IFU collection:

- 17a ascorbic acid determination using an HPLC method;
- 17b ascorbic acid determination using a titrimetric method using iodine and a potentiometric end-point determination
- 17c Enzymic determination of ascorbic acid.

Method 17 has now been replaced and updated as Method 17a, and is available in the methods section of the website.

IFU Recommendation 5 is also under review and this will include the conclusions from this validation study on a number of procedures.

The MAC group had a meeting on March 4th to follow-up other ongoing activities:

Nitrate ring-test for IFU 82 Determination of Nitrate (provisional): 13 labs participated and analysed 5 samples (orange NFC, orange FC, black currant juice, pineapple juice and carrot juice). Two samples showed high HORRAT values (carrot juice and orange NFC). In order to discard calculation mistakes, the participants have been contacted to verify the reported values. The committee might review the method and run another validation again.

Guideline for corrections: Salt, malic acid, brix and acid corrections have to be performed and in order to facilitate the corresponding calculations, a guideline is in the elaboration process for the conversion of the results.

Cell content interlaboratory validation: The working group (WG) is drafting a more accurate method or recommendation.

Automatic vs. manual methods: A Working Group elaborated a document for the characteristics of automatic enzymatic analytical methods and to define quality criteria. The group will indicate the operational range for typical values found in fruit juices. The draft document will be a guideline for assessment of the performance of automatic enzymatic methods and their alignment with the IFU procedures.

Cyanide: An EFSA assessment of the risks associated with the consumption of HCN and its glycosidic forms has been carried out and an acute reference has been set. There is no official IFU for cyanide but the working group will search for methods.

The next MAC meeting is foreseen to be celebrated in October.

IFU 52 typo error correction

In the IFU method number 52, **Determination of Alcohol, enzymatic,** a typo mistake was detected in page number 3, at the sample solution table, where in the pippetting schedule it should say 0.02 ml of Aldehyde dehydrogenase, Al-DH, rather than 1,02 ml.

The typo error has been corrected and therefore you can download the corrected version from the IFU website and replace the document you might have downloaded previously.

Sample solution: 1 - 12 µg ethanol/cuvette

Pipette into Cuvettes		blank	sample	concentration in assay
Buffer	(I)	1.00 ml	1.00 ml	$K_4P_2O_7$, 96 mmol/l
NAD solution	(II)	0.10 ml	0.10 ml	NAD, 1.56 mmol/l
sample or standard				
Resp.	(V)	-	0.10 ml	up to *ca* 80 µmol/l
Al-DH	(III)	0.02 ml	0.02 ml	*ca* 4.8 x 102 U/l
Redist. water		2.00 ml	1.90 ml	
mix and read absorbances of the solutions (A_1) after 2 min. Start reaction by addition of				
ADH	(IV)	0.02 ml	0.02 ml	*ca* 7 x 10^4 U/l
mix, on completion of the reaction (ca. 6 - 8 min) read absorbances of the solutions (A_2) immediately one after the other.				

Marketing Commission activities report 2021

MARGARITA MAIER MARKETING CHAIR

The Marketing Commission´s members have met for a series of Workshops during March and April to establish IFU positioning and moving forward.

IFU will continue with its "Core and More" strategy, focusing on the work delivered by the different Commissions and informing members through the Newsletter as it has been done in the past, but new initiatives like the IFU Technical Webinars and the IFU University are being offered to members and non-members.

IFU aims to use the science and the development of standards and guidelines to give a solution to the market and sustainability challenges the fruit and vegetal sector must face. These solutions can be given in the shape of industry best practices, innovation, and sector insights under the motto sharing knowledge globally.

Fruit and vegetable juice in the light of Nutri-Score

JUDITH HAUSNER VERBAND DER DEUTSCHEN FRUCHTSAFT-INDUSTRIE E. V. – VDF

VdF
Verband der deutschen Fruchtsaft-Industrie e.V.

The main purpose of Nutri-Score is "*to help the consumer determine what the nutritional composition of a given food product will contribute to a **balanced diet***".

Terms and conditions for the use of the Nutri-Score-Logo are given in the official document "conditions of use of the Nutri-Score-Logo". A second document "Nutri-Score frequently asked questions" (FAQ) is used to clarify and standardize certain points.

The conditions of use establish on the one hand a general case and on the other hand specific cases for cheeses, added fats and drinks. Therefore, it is important to clarify which products fall under the specific cases. The FAQ ask "Which beverages are covered by the Nutri-Score modification?". Besides mineral water, tea and drinks with added sugar, the answer sees also fruit and vegetable juices as drinks. Drinkable yoghurt, chocolate milk or plant-based drinks however are not considered beverages. Obviously, it is not the way how a product is consumed, but nutritional aspects that are relevant to classify a product in this context.

A look at fruit and vegetable juices shows that they have a comparable nutritional composition to the fruits and vegetables from which they are derived, as they are undergoing processing that does not significantly alter the nutritional composition of fruits and vegetables. As such, fruit and vegetable juices have a significant role to play in increasing the overall fruit and vegetable consumption which is still to date insufficient in European population.

Explicitly:

- The nutritional composition of fruit juices and vegetable juices provides a source of various vitamins, minerals and other bio-active components.

- The process of extracting juice from harvested fruits and vegetables only includes physical processing and preserves the benefits of the fruit and vegetable it has been obtained from.

- Fruit and vegetable juices are a source of many vitamins, minerals and bio-active substances such as flavonoids (hesperidin), anthocyanins and ellagitannins, flavanols, and other phytonutrients. For some nutrients bioavailability even increases through the process of producing fruit or vegetable juice.

- Fruit juices contain only natural sugars from the fruits they are derived from.

- Fruit juices cannot be reformulated as per Council Directive 2001/112/EC.

- Components such as preservatives, sugars, sweeteners, colors, must not be added to fruit juice as per Council Directive 2001/112/EC.

Furthermore, there are many beneficial effects of consuming fruit and vegetable juice for which scientific evidence is found in many studies:

- Fruit and vegetable juice consumption has a neutral effect on body weight.

- Fruit and vegetable juice have a low glycemic index (GI) and polyphenols are found in fruit and vegetable juice. They even slow glucose absorption.

- Fruit juice consumption in moderate dose demonstrates a protective association on cardio vascular disease (CVD) incidence, stroke, type 2 diabetes, metabolic syndrome and hypertension.

- Fruit and vegetable juice intake is strongly associated with higher blood levels of vitamin C and carotenoids, plus an overall 'composite biomarker score' associated with a lower risk of type 2 diabetes.

In addition, consumption of fruit and vegetable juice has an impact on consumer´s dietary patterns. Fruit and vegetable juices help to improve fruit/ vegetable intake and contribute to a healthy well-balanced diet complementing fruit and vegetable consumption:

- Consumers of fruit and vegetable juice tend to eat more whole fruit in line with the 5 or more daily servings of fruits and vegetables.

- Several dietary recommendations recognize 1 glass of fruit or vegetable juice as 1 portion of the recommended 5 daily portions of fruits and vegetables.

Considering this, the current Nutri-Score FAQ should be adjusted to reflect more accurately the full nutritional composition of fruit and vegetable juices and to recognize their role in a balanced diet:

In the Nutri-Score FAQ fruit and vegetable juice should be considered as liquid food falling under the general case.

Fruit juice is liquid fruit, vegetable juice is liquid vegetable – not more, not less.

TATIANA CAMPOS INSTITUTIONAL RELATIONS MANAGER, CITRUSBR

CITRUS BR BRAZILIAN ASSOCIATION OF CITRUS EXPORTERS

It is well-known that we are currently facing one of the main challenges of our generation – not only in terms of public health, but also in terms of unemployment.

According to the UN International Labor Organization (ILO), the job losses and reduced working hours due to the impact of the COVID-19 pandemic have cost the world the equivalent to 255 million jobs only in 2020. This "massive impact" was nearly four times the number of dismissals during the 2009 global financial crisis. Yet, the consequences have not been the same worldwide: developing countries such as Brazil have suffered more and witnessed their unemployment rates reach record rates.

Nevertheless, when we take a closer look at the Brazilian orange juice industry and the jobs created by citriculture in the last year, we face a different scenario. Only in 2020, the sector was responsible for generating 38,227 new jobs, corresponding to 6.33% of all jobs generated by agriculture in Brazil and 10.32% of the ones created in the state of São Paulo. It is important to state that these jobs offer formal employment, in compliance with all labor laws in force in the country. These laws guarantee a minimum wage and other several benefits, such as 60% overtime payment, vacation (salary + 1/3 of the salary), maternity leave (4 months), 13th salary, and FGTS (a severance indemnity fund). The creation of formal jobs, in compliance with Brazilian law, is of utmost importance, as, according to the Brazilian Institute of Geography and Statistics (IBGE), informality is still the reality for more than 40% of Brazilian workers.

Orange juice also has a strong positive impact on the cities where it is produced. Apart from being responsible for approximately 200,000 direct and indirect jobs, the sector generates income for the 347 municipalities in the so-called "Citrus Belt", located in the states of São Paulo and Minas Gerais. The average Human Development Index (HDI) of the main citrus-growing cities is higher than Brazil's HDI, and official data has shown that the average income of the main citrus-growing cities is 10% higher than the average income of Brazil. This means that these municipalities were able to improve the quality of life of their inhabitants due to the jobs and income generated by the orange juice industry.

We know that the pandemic is still not over, and, especially in Brazil, the challenges are still present as most of the population has not yet been vaccinated. Still, we are also aware that each time a consumer decides to drink a glass of Brazilian orange juice, this consumer is helping to disseminate growth and to generate jobs and income in our country in a time when it is most needed. That is the reason why we cherish our orange juice fans worldwide and guarantee to them that we will continue working hard to provide them a healthy, sustainable, and delicious product that they can be proud of having in their fridge and offering their family.

United States Efforts to Address Heavy Metals in Foods Consumed by Babies and Young Children

PAT FAISON TECHNICAL DIRECTOR JPA

There are a number of initiatives underway in the United States to address heavy metals in foods consumed by babies and young children, which will likely impact fruit juices.

Congressional Report

In February 2021, a Congressional Report, 2021-02-04 ECP Baby Food Staff Report.pdf (house.gov), commissioned by the U.S. House of Representatives Committee on Oversight and Reform's Subcommittee on Economic and Consumer Policy, was published, which examines heavy metals (inorganic arsenic, lead, cadmium and mercury) in brands of baby foods. While the primary focus of the report was baby foods, juices were also mentioned.

The Subcommittee concluded that "commercial baby foods contain dangerous levels of arsenic, lead, mercury, and cadmium." The standard for judging the levels of heavy metals in the baby foods was generally based on bottled water limits established by the U.S. Food and Drug Administration (i.e., 10 parts per billion (ppb) inorganic arsenic, 5 ppb lead and 5 ppb cadmium), and the Environmental Protection Agency's (EPA) limit for mercury in drinking water of 2 ppb.

Levels of heavy metals in baby foods were also compared to proposed limits by non-regulatory groups including the Environmental Defense Fund, Consumer Reports, and Healthy Babies Bright Futures. A number of lawsuits have been filed against some of the companies named in the Report.

Baby Food Safety Act Legislation

In March 2021, the "Baby Food Safety Act of 2021," was introduced in the U.S. Congress to reduce heavy metals (e.g., arsenic, lead, cadmium and mercury) in infant and toddler foods. If enacted, the legislation would, in part, establish the following initial action levels, effective one year after enactment, setting the maximum allowable limit of toxic heavy metals in infant and toddler foods: 10 parts per billion (ppb) for inorganic arsenic (15 ppb for cereal); 5 ppb for lead and cadmium (10 ppb cereal) and 2 ppb mercury. The legislation would also require manufacturers of infant and toddler foods to implement preventive controls to comply with performance standards of the FDA Food Safety Modernization Act (FSMA) and with maximum levels of toxic heavy metals set in the legislation. In addition, manufacturers would be required to conduct representative testing of final products for heavy metals as part of their hazard preventive control efforts. The action levels would be lowered over several years.

FDA Closer to Zero Action Plan

In April 2021, the U.S. FDA announced the "Closer to Zero: Action Plan for Baby Foods" – the Agency's action plan for reducing exposure to" toxic elements," including lead, arsenic, cadmium, and mercury, from foods for babies and young children. As part of this initiative, the FDA will propose action levels for the toxic elements. During the first phase (April 2021 – April 2022), the Agency will evaluate arsenic in foods and

propose action levels for lead in food categories consumed by babies and young children. During the second phase (April 2022 – April 2024), the FDA will gather data related to cadmium and mercury in foods, draft action levels for arsenic in foods for babies and young children, and finalize the lead action levels. In phase 3 (2024 and beyond), the Agency will continue to draft and finalize action items for toxic elements in foods for babies and young children.

JPA is aware that the FDA has submitted a Draft Guidance for Industry on the Action Levels for Lead in Juice to the White House Office of Management & Budget (OMB) for review. Following review by OMB, the draft guidance will be available via the Federal Register for review and comment by the public.

FDA Action Level for Inorganic Arsenic in Apple Juice

In July 2013, the FDA published a draft guidance to establish an action level for inorganic arsenic in single-strength (ready to drink) apple juice of 10 micrograms/kilogram (µg/kg) or 10 ppb. The draft guidance has been submitted to OMB for review and is expected to be published in the Federal Register by the end of summer 2021.

JPA is considering what efforts should be undertaken to address these juice-related issues.

New Secretary General at Austrian Beverage Association

Florian Berger has been appointed as new Secretary General of the VGO (Association of Beverage Producers of Austria, part of the Food Industries Association of Austria). It unites more than 300 producers of beer, soft drinks, mineral water, and of course fruit juices and syrups.

Florian Berger (born ´68) holds a master´s degree of the Vienna University of Economics. With his background of Sales, Marketing and Business Development he has held positions in the fields of market research, IT and - of course – beverages (fruit juices, beer) before he joined the Food Industries Association Austria (FIAA) in May this year.

Florian and his family live in Vienna, he is a big fan of skiing (active) and ice hockey (passive). He holds a seat in the advisory board of the Austrian Association of Foods Banks.

The Sustainability pledge of the European Fruit Juice Association

WOUTER LOX, SECRETARY GENERAL, AIJN

AIJN EUROPEAN FRUIT JUICE ASSOCIATION

The European Fruit Juice Association (AIJN) recently joined the European Pact for Sustainable Industry in response to the industry federation's support of the European Commission's Green Deal.

The Green Deal ambition and strategy is to make Europe the first climate-neutral continent by 2050. The juice industry can commit to do its part and support Europe's transition towards climate neutrality by 2050. However, this is a complex undertaking for such an internationally traded commodity - sourced globally from different regions, and involving different production, processing, and trading partners - and will require significant efforts from the whole value chain. In achieving carbon neutrality for the sector, every individual link of the value chain interacts and needs to share efforts. So there are for sure many short terms and long-term challenges to be identified for the industry to align, but at the same time, also many opportunities.

The concept of sustainability is holistic and covers social, economic, and environmental aspects that are in an interdependent relationship with one another. It is not possible to consider only one aspect when you commit to sustainability. This, in turn, requires a full value chain approach, both upstream as well as downstream, which might be challenging for international traded commodities like fruit juices.

The upstream production of fruit involves identifying and benchmarking the decarbonization pathways. This requires an in-depth analysis of the dynamic aspects that can contribute to the transition towards carbon neutrality, such as efforts to increase yields in agricultural production, overturn deforestation, manage the use of pesticides, improve water management and water retention, ensure soil management, and protect biodiversity, amongst others.

At the level of production of fruit juice concentrates, the more efficient use of energy in the thermal process will have an impact on the reduction of direct emissions generated during the production and transformation

processes. Further down the value chain, when it comes to packaging, downsizing the consumer portion and limiting food waste will influence the contribution a sector can give to reaching this green transition.

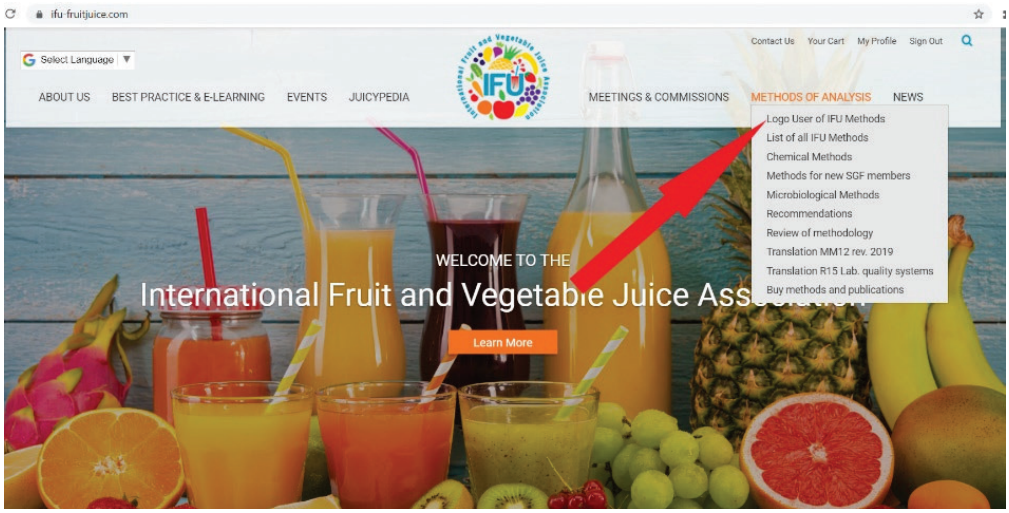
A sector can only succeed if all stakeholders involved at each stage of the value chain work together, also beyond the European borders. Most juices and concentrates in Europe come from fruits grown and processed in regions outside of Europe. Therefore, decarbonizing transportation into Europe is relevant for the transition of the whole sector.

The sustainability roadmap, yet to be established, needs to be holistic, and cover economical, social, and environmental aspects. The role of AIJN in reaching climate (carbon) neutrality is to define within the value chain the critical contributors towards the neutrality of the sector. The drafting of the roadmap will lead to a prioritization of these contributors based on the impact and efforts required. This process involves also the identification of industry targets, the identification, and sharing of best practices. Furthermore, collaboration in drafting the roadmap will help to identify the challenges to carbon neutrality and remove the hurdles. Tracking progresses and defining corrective actions in case of deviations will be key to achieve this goal.

AIJN as a sector association can facilitate the engagement of the full value chain - upstream as well as downstream –in achieving decarbonization and the AIJN sustainability roadmap will be the guide to help to achieve this ambition. Moreover, this roadmap will help individual companies to focus on their contribution, but it remains a sector project if the sector in its entirety wants to achieve the transition to carbon neutrality.

User of IFU methods

IFU Members (Corporate, Association and Friend Category 2) have access to IFU methods and will probably reference them in their own analytical operations.



We have now developed a “User of IFU Methods” logo that members can voluntarily use on their website or in communications which will then demonstrate that they use IFU Methods.

The logo is available to download from the IFU website via the top menu “Methods of Analysis”

Survey Reports and winners for next year's IFU Technical Workshop on June 20, 2022 in Parma

Everybody who filled out a survey after each block of the **IFU Technical Webinars** and the **IFU Digital Summer School** was entitled for a drawing. Now we want to share with you some testimonials we received and present the winners!

> "In my opinion the webinars are very well organized. The Q&A section is very helpful, I think it is very important that professionals from all over the world are included to enrich the experiences! Congratulations!"

> "I think the total time of IFU summer school is a little bit short. It could be longer. The information provided was invaluable. I am so glad to joined."

> "Good to be in relation also with EFSA highligts, residual issues, food contaminants, fruit waste recovery for health."

> "Overall - great webinar. Can't wait to attend one of these meetings in person. (obviously – that is beyond your control right now!)"

> "It was very well set up. Everything was great. Thank you for recording."

> "It was perfect."

> "All things considered it was a great use of my time."

IFU Technical Webinars WINNER

Dr. Haibo Xuan
Kompetenzzentrum Obstbau-Bodensee, Scientista

IFU Digital Summer School WINNER

Iklime Özcan
Anadolu Etap, Quality Assurance Engineer

IFU Technical Webinars in 2021

Due to the continued short-term uncertainty around the COVID situation, it was not possible to physically meet at the IFU Technical Workshop, but many hot topics were presented in a series of webinar sessions.

The webinars were organised in four blocks covering the quality, authenticity, nutrition and sustainability aspects. The novelty this year is that simultaneous interpretation to Spanish and French was provided during all four live webinars. In this edition an exceptional international panel of speakers from various continents took part in the sessions.

The first block celebrated on May 25th was moderated by **Mr. Kees Cools,** president of IFU, where various quality aspects of the fruit juices were discussed. The first speaker was **Dr. Manfred Goessinger,** Director Deputy of Weinobst in Austria, who presented the HiStabJuice project, where the impacts of processing technologies on the stability in fruit juices will be studied. This project is financed by the European Union. The second speaker, **Dr. Eduard Wiedenbeck,** Product Specialist Kjeldahl Solutions from Buchi Corporation in Switzerland presented the automated determination of citrus essential oils in juice. Afterwards, **Mr. David Mangan,** Research Director in Megazym, located in Ireland presented the analysis of inulin and fibres and the presence of inulin in juices. The next speaker was **Dr. Soraya Bellini,** Head of the Food Chemistry I area at the research centre CIATI in Argentina. She detailed the quality aspects of the Argentinean lemon juices. Finally, **Dr. Eran Blachinsky** and **Ms. Gali Yarom,** CEO and COO respectively of Better Juice in Israel presented a new technology for sugar reduction in fruit juices.

The second block, dedicated to fruit juice authenticity, took place on May 27th and was dynamized by **Mr. Mikko Hoffsomer,** CEO at GfL laboratories in Berlin. **Dr. Thorben Nietner,** Laboratory Manager at CVUA Sigmaringen in Germany, explained the differences between blond and blood orange juice by analysing the amino acid profiles. **Mr. Markus Jungen**[1], Technical Manager at SGF in Germany gave an overview of the control tasks carried by SGF and the Food Fraud Vulnerability Assessment. The methods to detect geographical origins of the products[2] and the implications in the labelling were introduced by **Dr. David Hammond,** Fruit Juice Expert at Eurofins in UK. **Dr. Bianca May,** Professor at the Hochschule Geisenheim in Germany presented the leaching of heavy metals from processing aids in fruit juices. Finally, **Dr. Elisabeth Varga**[3], senior lecturer at the University of Vienna in Austria, introduced the effects of mycotoxins in fruits and in particular the Alternaria toxins in tomato juices.

The health and nutrition topics were discussed on June 1st moderated by **Mr. David Berryman,** CEO at Berryman Ltd. **Dr. Diane Welland,** Director of Nutrition Communications at the JPA in USA shared the first outcomes of the JPA´s research, nutrition and communication programme. One of the good news is that the American Dietary Guideline 2020-2025 is including the consumption of orange juice in the healthy diet. **Dr. David Vauzour**, Senior Researcher at East Anglia University in the UK, gave interesting insights on the effects of citrus polyphenols in brain health and disease as well as the current perspectives. Likewise, **Dr. Carrie Ruxton,** nutritionist from UK, presented a myriad of scientific evidence on health effects of fruit juices. **Dr. Pedro Mena,** lecturer at the Parma University in Italy completed the information with a presentation on juice polyphenols and the effects on consumer´s health. The block was closed by D**r. Julián Londoño,** CEO at Sosteli Pharma from Colombia, who explained the effects on chemical composition and antioxidant activity of the different industrial citrus juice extraction systems.

The last block was dedicated to sustainability and was moderated by **Mrs. Aintzane Esturo,** Technical Director at IFU. She introduced **Mr. Athanasios Mandis,** CSR platform chair and founder of De la Tierra consulting company in UK. He presented the Juice CSR platform creation and development, as well as the liaison with IFU and the future projects for the fruit juice sector. **Ms. Rosa**

Rolle, Senior Enterprise Development Officer at the FAO headquarters in Italy, presented the recommendations to achieve the reduction of food loss and waste globally. **Mr. Wouter Lox,** Secretary General in AIJN, European fruit juice association based in Belgium, presented the European Green Deal, a plan to make EU´s economy sustainable, to turn climate and environmental challenges into opportunities. He presented the investments needed and the available financing tools. **Mr. Hugo Hays,** Global Director Compliance and Food Safety at Fyffes, from Costa Rica, explained the sustainability of the bananas in the supply chain giving some success stories as examples. To close the block **Mr. Neil Court-Johnston,** Vice-president of Strategy at Zotefoams in UK presented a new packaging product: a fully recyclable aseptic beverage carton, made only by plastic.

During each block participants were able to ask questions and answers took place at the end of the block. Around 185 participants were registered. We thank our sponsors BioSystems, Citrosuco, GfL - Gesellschaft für Lebensmittel-Forschung, reZorce and Bucher Unipektin for supporting our webinar.

1. An article by Markus Jungen et al was recently published "Coumarins, psoralens, and quantitative 1H-NMR spectroscopy for authentication of lemon (Citrus limon [L.] Burm.f.) and Persian lime (Citrus × latifolia [Yu.Tanaka] Tanaka) juices", which was also a presentation topic at the 2020 Virtual Technical Workshop.
2. A reference was made to chapter 17 "Juices and non-alcoholic beverages" from the book "Food protected designation of origin: Methodologies and Applications"
3. Article from the working group of Mrs Varga "Quantitation of free and modified Alternaria mycotoxins in European food products by LC-MS/MS"

IFU joins the Juice CSR Platform

The Fruit Juice CSR Platform´s objective is to inspire, guide and support fruit juice actors to integrate corporate social responsibility in their business operations and core strategy.

The Platform **(www.juicecsr.eu)** facilitates and supports collaboration, ensures quality and sector-wide participation, plus communicates, and harmonises efforts. IFU joined in April the Juice CSR Platform as advisory member and will contribute to boosting the communication of the Juice CSR Platform activities outside Europe to relevant stakeholders.

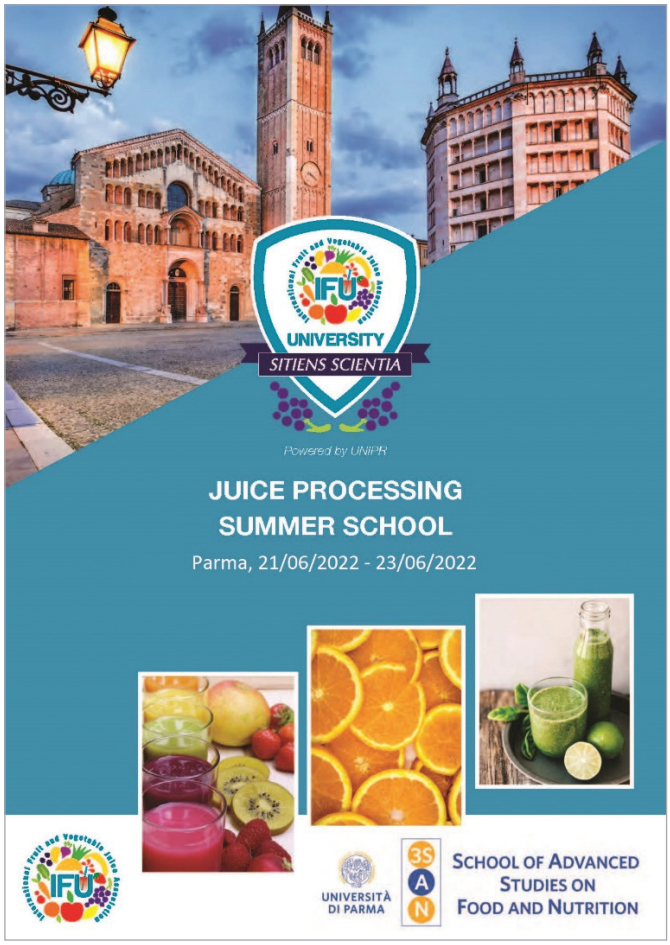
The Platform has identified the SAI Platform Spotlight tool as a useful and interactive tool to identify and share sustainability areas of concern. So far there are some topics emerging: pesticide reduction, economic importance of wild pollinators and sectorial catchment area Water Stewardship.

The platform seeks to cooperate with the European Green Deal and to increase the collaboration between the Global North and Global South.

The Juice CSR Platform releases a periodical newsletter that will be distributed among the IFU members too. The first newsletter corresponding to May´s issue was distributed on May 19th.

If you are interested in joining the Juice CSR Platform directly, you can contact the Platform at **hello@juicecsr.eu**

IFU University pre-launch



Due to the Covid-19 pandemic, the launch of the IFU University in 2020 had to be postponed to 2021. The actual sanitary conditions are still not the proper ones to launch the IFU University as originally planned in Parma. Therefore, it was decided to launch a short digital version so the participants could get a taste of what will be delivered next year in the full presential programme.

The digital version focused on the extraction technologies through 7 excellent lecturers, professors from the University of Parma and experienced professionals from the industry.

The welcome and opening of the IFU University was done by Mr. Mario Gozzi, from CFT and Chair of the IFU Science and Technology Commission.

The first speaker was Mr. Edgar Zimmer, from Bucher Unipektin in Switzerland, who explained the production processes of clear & cloudy juices. The second lecturer was Dr. José Lorente, from JBT in Spain, who gave an overview of the citrus extraction and the products and by-products that can be obtained. The third lecture was given by Mr. Fabio Tedeschi, from CFT in Italy, who gave details on the extraction of juices of Mediterranean and tropical origins. The block dedicated to the juice extraction from the fruits was moderated by Ms. Aintzane Esturo (IFU).

The second block of lecturers dedicated to the thermal juice stabilization was moderated by Dr. Giuseppe Vignali (University of Parma) who introduced the topic of thermal effects on microorganism, enzymes and nutritional compounds. The microbiology part was presented by Mr, Matteo Di Rocco and the enzymatic and nutritional aspects were presented by Ms. Emanuela Cocconi. Both speakers are from the Stazione Sperimentale per l´Industria delle Conserve Alimentari – Fondazione di Ricerca SSICA in Italy. The third presentation was dedicated to thermal and fluid dynamics concepts explained by Professor Sara Rainieri from the University of Parma who outlined the conventional and ohmic heating characteristics. Participants were able to ask questions and interact with the speakers in this digital edition.

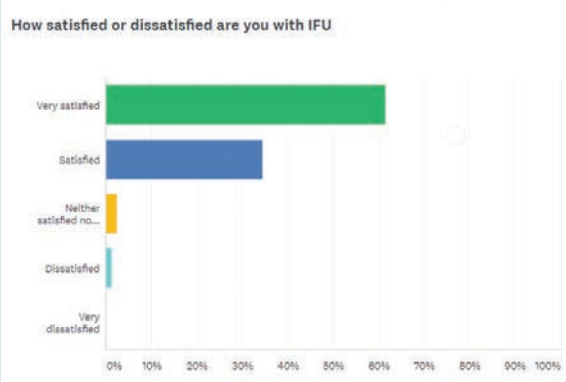
The “IFU Digital Summer School” is available to buy on demand on **www.ifu-fruitjuice.com**

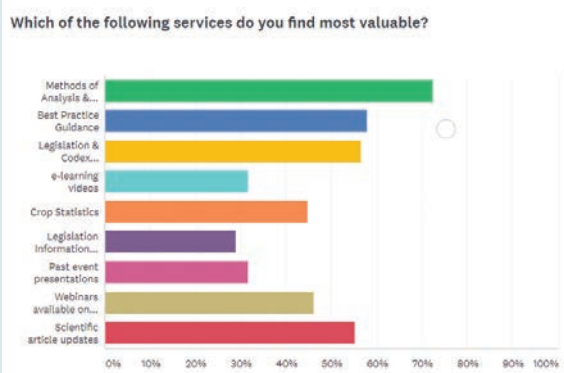
The full edition will take place in Parma, Italy with the full programme, including laboratory practices and visit to state-of-the-art pilot plants from the **21st – 23rd June 2022**

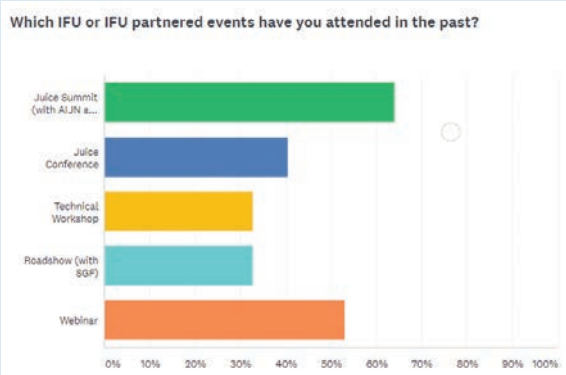
We hope to see you there!

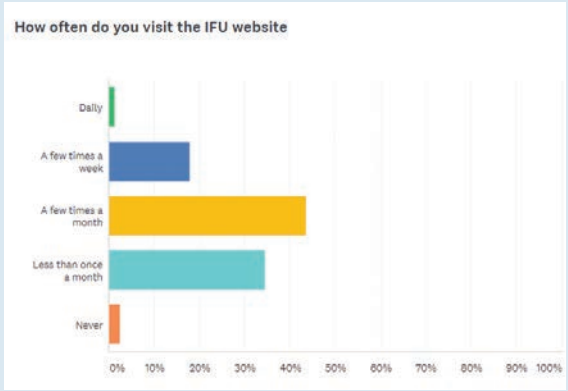
IFU Membership satisfaction survey

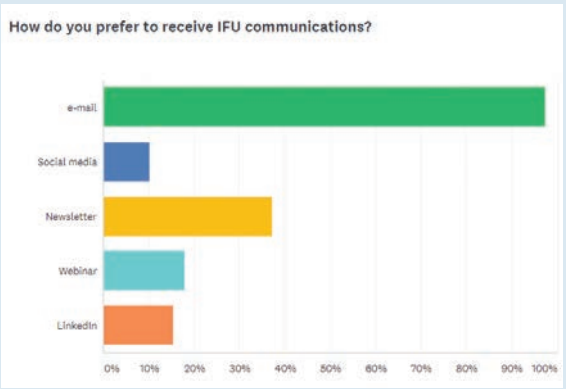
Thank you to our members for completing the membership satisfaction survey earlier this year. It was very helpful to understand the services you find useful, how you like to interact, and what you would like to see in the future. Here is a snap shot of some of your feedback.

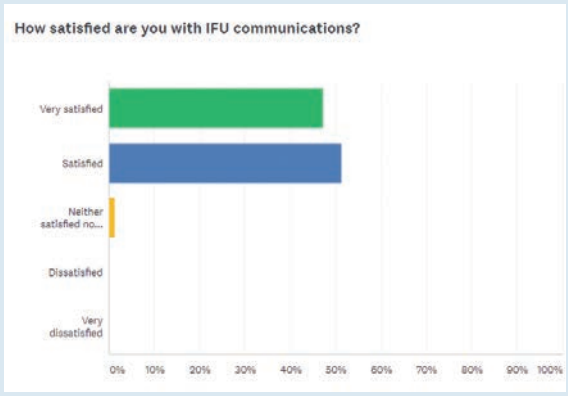


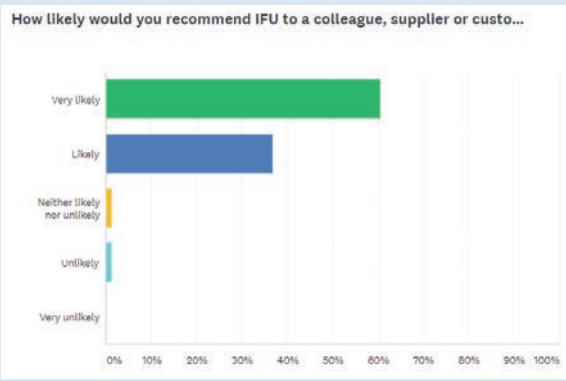












If you would like to know more how to get involved in any of the Commissions or the work of IFU generally then please do not hesitate to contact a member of the IFU team, we are ready to hear from you.

FAO launches the UN's International Year of Fruits and Vegetables 2021

The United Nations General Assembly designated 2021 the International Year of Fruits and Vegetables (IRFV).

FAO is the lead agency for celebrating the year in collaboration with other relevant organizations and bodies of the United Nations system. IFU also supports this initiative.

The IYFV 2021 is a unique opportunity to raise awareness on the important role of fruits and vegetables in human nutrition, food security and health and as well in achieving UN Sustainable Development Goals.

The IYFV 2021 aims at raising awareness of, directing policy attention to, and sharing good practices on the nutritional and health benefits of fruit and vegetable consumption, the contribution of fruit and vegetable consumption to the promotion of diversified, balanced and healthy diets and lifestyles, and reducing loss and waste of fruits and vegetables.

Fruits and vegetables are good sources of dietary fiber, vitamins and minerals and beneficial phytochemicals.

FAO and the World Health Organization recommend that each adult consumes at least 400 grams of fruit and vegetables on a daily basis to prevent chronic diseases, such as cancer, diabetes, heart disease and obesity, as well as to counter micronutrient deficiencies.

A background paper outlines the benefits of fruit and vegetable consumption, but also examines the various aspects of the fruit and vegetable sector from a food systems approach: from sustainable production and trade to loss and waste management. This paper provides an overview of the sector and a framework and a starting point for discussion for the Year, highlighting the interlinkages of stakeholders and key issues to be considered for action during the IYFV.

The background paper available in English, Arabic, Russian, French, Spanish and Chinese can be downloaded in the following link:
https://doi.org/10.4060/cb2395en

IFU presents sector challenges at the EIT FOOD Government Executive Agency

The overall goal of the EIT Food Government Executive Academy (GEA) is to disseminate knowledge about recent trends in agri-food innovations and to develop skills needed for successful interregional cooperation. The program of GEA centres around a sequence of lectures, teamwork sessions and assignments related to agri-food innovations and innovation policy practices.

GEA edition 2021 was focused on designing mission-oriented innovation policies related to the agri-food sector, helping participants nurture societal challenges relevant for their countries or regions. Furthermore, GEA exposed them to the newest research trends in the agri-food sector, emerging technologies, current R&D interests of multinational corporations, start-ups and scientific organisations, coupled with the Innovation Agenda of EIT Food, the largest public-private partnership promoting innovative transformation of the European food system.

The training session was coordinated by the University of Warsaw and lasted for three days in June. The speakers were Professor Krzystof Klincewich (University of Warsaw); Professor Anneli Ritala (VTT, Finland), Damien Jourdan, Open Innovation Manager (Danone); Peter Kruger, CEO (Ezecute); Aintzane Esturo (IFU); Jakub Urbanski, founder of HiProMine and Chief Science Officer (NOMI Biotech Corp.); Antonia Lorenzo, CEO (Bioazul); Ola Lazar, founder of Gastronauci/ Zomato and FoodForward Accelarator and Tanja Buch-Weeke, Regulatory Affairs Director (Pepsico Europe).

Participant institutions were coming from Bulgaria, Croatia, Czechia, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain and Turkey.
IFU participated with a presentation on future challenges of the fruit and vegetable juice sector, where sustainability, nutritional aspects, knowledge transfer and promotion of start-ups were mentioned.

September 29th:

International Day of Awareness of Food Loss and Waste

Food and Agriculture Organization of the United Nations | UN environment programme | SUSTAINABLE DEVELOPMENT GOALS

The FAO Director-General noted that food loss and waste in the fruits and vegetables sector remains a problem with considerable consequences, and that “innovative technologies and approaches are of critical importance”, as “they can help maintaining safety and quality, increasing the shelf life of fresh produce items and preserving their high nutritional value”.

Food loss and waste reduction improves food security and nutrition, reduces greenhouse gas emissions, lowers pressure on water and land resources and can increase productivity and economic growth.

Up to 50 percent of fruits and vegetables produced in developing countries are lost in the supply chain between harvest and consumption. The fruit juice industry can contribute to the reduction of the food loss.

IFU supports the international Day of Awareness of Food Loss and Waste which has been fixed in 2020 on September 29th.

More information available in: Technical Platform on the Measurement and Reduction of Food Loss and Waste | Food and Agriculture Organization of the United Nations (fao.org)

IFU activities with OIV 2021

The International Organisation of Vine and Wine (OIV) contacted IFU in 2020 to assist in defining methods for grape juice.

IFU participated in a series of working groups within the OIV, such as the electronical WG under the leadership of Brasil where IFU participates to avoid duplication of methods/work; the OIV LABWORK group where they intend to create a compendium of methods for grape juice and wine and the OIV microbiology working group where methods for analysing grape juice are discussed.

The next meeting of the Methods of Analysis Sub Commission will be in October 2021. Strategical meetings between IFU and OIV will take place to define further progress and details of the cooperation.

OIV International Organisation of Vine and Wine Intergovernmental Organisation

World Food Safety Day 7 June 2021

June 7th World Food Safety Day

World Food Safety Day observance on June 7th aims to draw attention and inspire action to help prevent, detect, and manage foodborne risks, contributing to food security, human health economic prosperity, agriculture, market access, tourism and sustainable development is the and IFU is also supporting this initiative because the food safety is everyone´s business and IFU shares this philosophy too.

This year's theme, 'Safe food today for a healthy tomorrow', stresses that production and consumption of safe food has immediate and long-term benefits for people, the planet, and the economy. Recognizing the systemic connections between the health of people, animals, plants, the environment, and the economy will help us meet the needs of the future.

This year, on the occasion of World Food Safety Day 2021, the Food and Agriculture Organization of the United Nations (FAO), World Health Organization (WHO), United Nations Environment Programme (UNEP) and, World Food Programme (WFP) hosted a joint regional food safety event on 3 June 2021. The event focused on the holistic "One Health" approach for food safety, which recognizes the connection between the health of people, animals and the environment.

IFU-SGF ROAD SHOW 2021

Continuing with the Road Show seminars co-organised with SGF which started in 2016, but had to change to virtual in 2020 due to the pandemic, in 2021 a virtual edition was celebrated again on March 16th, 17th and 18th.

The programme consisted in updated information on IFU, presented by Ms. Aintzane Esturo, Technical Director of IFU; Background, application, benefits and outlook of the SGF database of authentic samples, presented by Mr. Markus Jungen, Technical Manager of SGF; Developments of the Code of Practice Expert Group, presented by Dr. Alejandra Aguilar Solis, Technical and Scientific Affairs Manager in AIJN; Beyond de AIJN ranges: other useful analytical information to test authenticity, presented by Dr. Eric Jamin, Authenticity Business Unit Manager in Eurofins; Recovery of valuable by-products from citrus peel waste: biofuel, d-limonene and cattle feed, presented by Mr. Miguel Sánchez, Business Development Lead EMENA in John Bean Technologies; Global GAP Crops for Processing (CfP) Standard, presented by Ms. Napaporn Rattanametta, Technical Key Account Manager- ASIA in Global GAP and Orange juice trends, presented by Mr. Renato Santos, Global Marketing General Manager at Citrosuco.

The programme was the same the three days, but the timing was adapted for the different world time zones to cover EMEA on Tuesday, ASIA on Wednesday and AMERICAS on Thursday. Another novelty introduced this year was the simultaneous translation option, which allowed French and Spanish speaking participants follow the presentations in their native languages.

The participation numbers were smashing previous records, with a total of 538 participants, who could participate live asking questions to the speakers or watching later the presentations on demand.

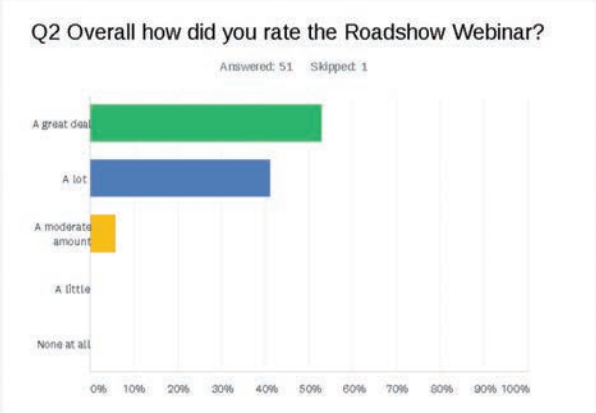
Roadshow	Registrations	Unique Viewers (live)	on demand views (of which registered)
EMEA	253	155	80 (30)
ASIA	116	62	46 (13)
AMERICAS	269	148	47 (15)
TOTAL	638	365	173 (58)

Survey results

52 participants filled out the survey
from March 16 to March 24, 2021

Comments for Q2:

- "Excellent issues and presenters"
- "As usual, very useful for my activities and the themes and professionals were very good."
- "Thank you very much to all the people involved"
- "Excellent, clear and very informative presentations"
- "Pretty good to have an information on what is currently going on in SGF and IFU and AIJN."



This edition could only be possible thanks to the sponsors of the event:
Citrosuco, Eurofins, John Bean Technologies, Anuga FoodTec, BUCHER Unipektin and Cibus Tec.

Gold Sponsors:

eurofins | JBT | citrosuco

Silver Sponsors:

BUCHER unipektin | ANUGA FOOD TEC | CIBUSTEC

IFU members can access the presentations slides in Juicypedia /IFU Event presentations. To view the webinars on demand, please contact Maria **maria@ifu-fruitjuice.com** (only available for members).

Consumers behavior is driving packaging

TONY HADDAD IFU MARKETING COMMISSION / ARAB BEVERAGES ASSOCIATION VICE CHAIRMAN

Market trends and impact on packaging:
Consumers behavior and need for personalization, is certainly driving for new packages, to expand the range of consumer's choices. Consumers are looking for innovation and excitement. Demanding consumers want a "personal choice" in picking from the shelves, reflected in one pack with a variety of products (rainbow pack). In fact, over the last 3 years, there has been about 30% increase in number of Launches for new product, new variety packs and new packaging.

Challenges to the supply chain:
To meet the increased demand of smaller packages, the factories face numerous challenges on their existing lines:
- Speed limitations due to lower case count.
- Reduces flexibility for frequent changeovers.
- Increased line complexity.

Repacking as a solution:
In order to address these challenges, factories have shifted the problems from the factory floor, to the logistics divisions. The solution is implemented in the warehouse, or at the distribution centers, where pallets of single products are fed from the warehouse racks. The products are unpacked, and then repacked in the desired mix. Due to the complexity of the concept and the high volumes required, manual operation cannot meet the desired performance results. Automated solutions have been developed to perform the whole sequence of operation, without any operators, including:
- Depalletize and single lane the packs.
- Cut the secondary pack (film or carton)
- Unpack the primary container.
- Mix various products in a Rainbow variety pack.
- Repack in a secondary pack (reused or new)
- Palletize the Rainbow variety pack.
- Stretch wrap the pallet.

Solution is adequate for various containers and secondary packs.

Rainbow pack formats:
The rainbow pack can be the same format as the original pack, but with various flavors.
in that case, the secondary pack, except the shrink film, can be preserved and reused to save on material and cost. The rainbow pack can have a smaller format and case count, in that case, the original pack is wasted and a new secondary pack is formed.

No doubt the consumers are shaping the designs of the packs and the shelves at the retailer outlets. Packs and shelves do look like rainbows; a very beautiful and exciting experiences to shoppers, but a nightmare to producers. Fortunately, modern robotic automation systems can provide the solution. This is not the last challenge which industry will face, consumer's behavior will keep evolving and industry needs to keep following.

Case Study

**STEFAN REIß IFU MEMBER,
AIJN EXPERT GROUP COCONUT WATER**

Stefan Reiß, CEO of Green Coco Europe GmbH, co-founder of the premium brand Dr Antonio Martins and IFU Member, started the coconut water project in 2002.In this case study, he shows decision-makers in the fruit juice industry a crucial approach to improving the Nutri-Score Balance in fruit juices and smoothies: Reducing sugar content by adding coconut water.

More than 7 million people have diabetes in Germany – an increase of 38 percent since 1998. The number of unreported instances is also high. According to the German Deutsche Diabetes-Hilfe diabetes organisation, 500,000 new cases are diagnosed each year. Obesity, poor diet and too little exercise are often the causes of this disease, which also affects around 32,000 children in Germany. Type II diabetes not only presents a task for politics and society; the food industry is also under pressure to react to this development and provide the most transparent information possible on products. This not only stems from the fact that the target group in need of the information is growing; the number of highly nutrition-conscious individuals who demand such clarification is also increasing steadily. For example, on Instagram alone, there are over one million posts featuring the German hashtag #gesunderernährung; the English version, #healthyfood, is featured in well over 87 million posts.

On 5 November 2020, the German Minister for Food, Julia Klöckner, gave the green light to a nationwide introduction of the Nutri-Score. The system, which originated in France, not only labels sugar, fat and salt but also provides an overall assessment, which includes recommended ingredients such as dietary fibre. The “nutritional value traffic light” gives a single score on a five-level scale, starting with “A” on a dark-green background, for the most favourable balance, through to a yellow “C” and finally a red “E” for the least favourable. The logo is intended to supplement mandatory nutritional value tables on the back of packaging and to make this information present and instantly recognisable for the consumer.

The Minister for Food’s expectation of widespread (voluntary) use by food manufacturers is increasingly being confirmed. Danone, for example, wanted to completely introduce the Nutri-Score in Germany by the end of the year 2020 (Information LZ November 2020).

According to a recent survey conducted by the Hamburg market research institute Appinio, 81 percent of surveyed consumers would like the Nutri-Score logo to be mandatory for manufacturers, while 60 percent believe that Nutri-Score will help them on their way to a healthier diet. 91 percent of those surveyed are convinced that having uniform information on food packaging is beneficial and want this indication to be prominently displayed on the products.

This consumer assessment also puts fruit juice producers under increasing pressure. They see themselves challenged by the fact that the Nutri-Score only classifies fruit juices, which consumers essentially perceive as healthy, in area C and smoothies in the even less favourable area D due to their high fructose content.

What solution might present itself here? The reclassification of fruit juices on a fruit basis instead of on a drinks

basis, which would result in a considerably more favourable Nutri-Score value, will take some time. So what could happen in the short term? How do you significantly reduce the sugar content without losing the 100 percent fruit juice status that consumers consider to be an important quality feature?

Green Coco Europe has taken the bull by the horns and developed a 100 percent juice according to the European fruit juice directive with a Nutri-Score value of B.

Stefan Reiss, CEO of Nuremberg-based Green Coco Europe GmbH, is convinced of the benefit of his original product in just such a debate: “Coconut water and coconut juice have enjoyed great popularity among health-conscious consumers and athletes for years. The water of young coconuts has also been a traditional drink and complementary medicine in South America and Asia for thousands of years.”

Minerals such as magnesium, calcium and potassium make the juice a power juice. Coconut juice is a fat-free, refreshing, rehydrating juice with a light, non-dominating taste. With only 11-19 kcal per 100 ml, it has the lowest calorie and sugar content of all fruit juices. “These positive characteristics not only meet consumer demand for a healthy, low-sugar and balanced diet, but also provide the ideal conditions for manufacturers to transfer the tropical thirst quencher’s positive image to their juice and

RECIPES
Dr. Antonio Martins suco

ORANGE – ORGANIC MULTI FRUIT JUICE
Ingredients: Organic orange juice (55%), organic coconut juice (38%), organic tangerine juice (6%), organic lemon juice (1%).

Nutritional Information per 100ml
Energy 135 kJ / 32 kcal
Fat 0 g, of which saturates 0g
Carbohydrates 6.4 g, of which sugar 5.9g
Proteins 0.6g
Sodium 0g

EXOTIC MULTI FRUIT JUICE ORGANIC
Ingredients: organic coconut juice (40%), organic apple juice (20%), organic orange juice (20%), organic banana puree (5%), organic pineapple juice (5%), organic passion fruit juice (4%), organic mango puree (3%), organic lemon juice (3%).

Nutritional Information per 100ml
Energy 151 kJ / 36 kcal
Fat 0 g, of which saturates 0g
Carbohydrates 7.6 g, of which sugar 6.7g
Proteins 0.4g
Sodium 0g

significantly reduce the sugar content in fruit juices," says Reiss, who presented his sugar reduction solution to an international trade audience at the AIJN Juice Summit in 2018. He makes it clear that: "Adding coconut water can reduce sugar and calorie content by more than 30 percent and the product can still be declared as 100 percent fruit juice under fruit juice and soft drink regulations."

By using low-brix coconut water, the most subtle-tasting and, with only 11 calories, the least sugary coconut water on the market, fruit juices can raise their Nutri-Score from the yellow C range into the **green B range** and smoothies can improve on their D rating and climb into the **C category.**

That the presentation by the coconut water expert at the Juice Summit 2018 proved an initial spark for the industry is demonstrated by the fact that large fruit juice producers such as Eckes Granini and discount stores like Aldi are jumping on the bandwagon and adding coconut water to their fruit juices and smoothies. Green Coco Europe GmbH has realised projects with several fruit juice producers and is launching its own Nutri-Score B fruit juice range for the first time in organic shops throughout Europe in July 2021, with the flavours orange and mixed fruit.

"This is pure fruit juice combined with pure coconut water from around three coconuts. It's wonderfully fruity, full-bodied and, thanks to the coconut water, 100 percent fruit," says Reiss, who cannot hide his enthusiasm for the juice of the one-seeded drupe and his vision of making fruit juices more attractive by adding coconut water. The coconut water pioneer can currently find justification for his solution in the introduction of the Nutri-Score, the trends among consumers, the associated needs of manufacturers and retailers and, not least, loud demands in politics and society.

Green Coco Europe GmbH is member of the German Fruit Juice Industry Association (VdF), the global International Fruit and Vegetable Juice Association (IFU) and is SGF/IRMA certified (the fruit juice industry's own control body). With its Dr Antonio Martins premium brand, the Nuremberg-based company has been the category leader for premium quality organic coconut water and organic coconut juice for over 18 years. Does the coconut doctor really exist? Yes! Dr. Antonio Martins, a paediatrician and sports doctor, is the namesake and founder of the company. Together with CEO Stefen Reiss, the native Brazilian was the first to bring his home country's national drink to Europe in organic form. After working abroad in various leading positions (most recently as Head of Paediatrics at Medeor Downtown Medical Centre in Dubai), Dr. Antonio Martins now lives with his family in Austria and has had his own paediatric practice there since spring 2017.

Save the dates

As always: We can offer free tickets for IFU members for all food & bev fairs organized by Koelnmesse/Cologne Exhibition Center (except Sial in Paris and Anuga fair in Cologne) – send an email with the names of the visitors to Maria and she will make sure you`ll get your ticket! Due to the current pandemic, we will mainly list IFU events that we are responsible for.

You can also contact Maria if you are interested in becoming a sponsor of one or all of our events!

2021

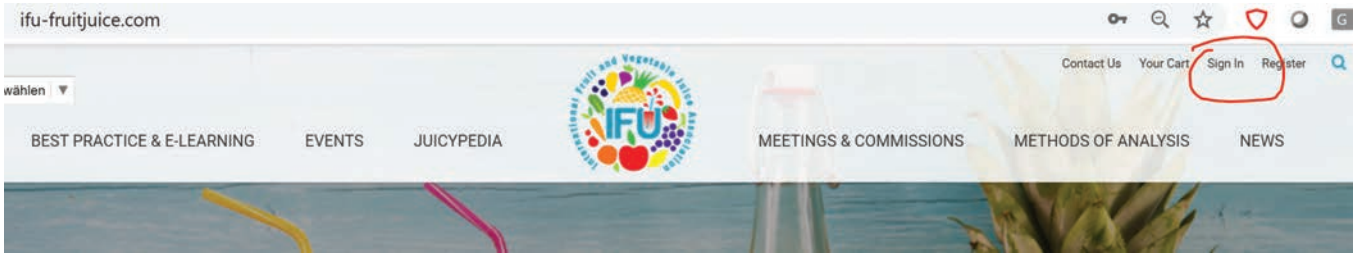
DATE	EVENT	LOCATION	LINK
6th – 7th October	IFU AIJN SGF Juice Summit TV	Online	www.juicesummit.org
9th – 13th October	Anuga	Cologne,Germany	www.anuga.de
21st October	IFU General Assembly	Online	

2022

DATE	EVENT	LOCATION	LINK
Spring	SGF IFU Roadshow	tbd	
26th – 29th April	Anuga FoodTec	Cologne, Germany	www.anugafoodtec.com
11th – 12th May	IFU Juice Conference	Spier Conference Center, Stellenbosch, South Africa	ifu-fruitjuice.com/page/Events
20th June	IFU Technical Workshop	Parma, Italy	ifu-fruitjuice.com/page/Events
21st – 23rd June	IFU University	Parma, Italy	ifu-fruitjuice.com/page/Events

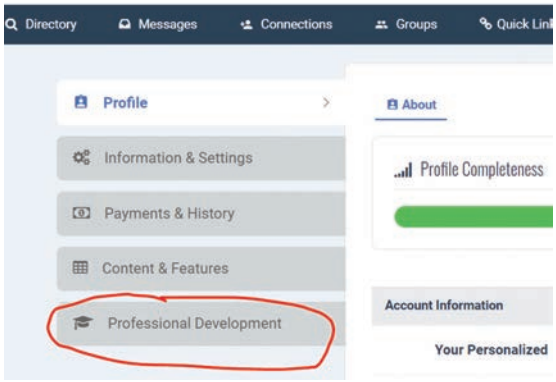
How to download your Certificate of Participation for the IFU Technical Webinars and any other future IFU events

1) On the IFU website www.ifu-fruitjuice.com, click on “sign in”

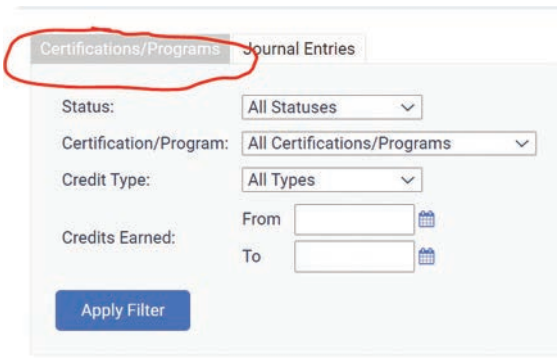


2) Once you have logged in, you will see a message at the top which says “Welcome, Joe Bloggs”. Click on the little arrow next to this and you will see a drop down choice. Click on “Account + Settings” and you will see “Professional Development” appear in the left-hand column.

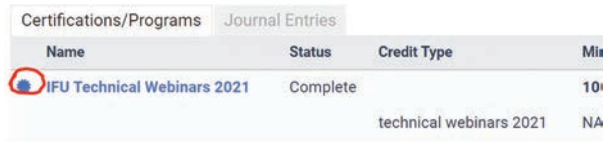
3) Choose “Professional Development”



4) Choose “Certifications/Programs”



5) Click on the seal symbol



6) Now a pop up window opens, where you can print your certificate (do not forget to set the printer to landscape and color mode!)

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